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Examiner C. Knoll
Group Art Unit 2112

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MECHANISM FOR EFFECTING A FAST DATA TRANSMISSION BETWEEN COMMUNICATION DEVICES

FIELD OF THE INVENTION

5 The present invention relates to communication devices and more particularly to a mechanism for effecting a fast data transmission between communication devices.

BACKGROUND OF THE INVENTION

10 In recent years, the unit price of cellular phones has been reduced significantly as the communication industry has boomed. And in turn more and more people like to use cellular phones. Further, as development revolved more advantageous benefits are provided by mobile phones, which have become ever more slim, multifunctional, and convenient while still maintaining a high communication quality. Moreover, there is a communication software provided by a newly commercial mobile phone for providing a variety of data transmissions such as alphabetic data, graphical data, or the like. Hence,
15 in additional to conversation it is possible to communicate alphabetic data, graphical data, etc. between two mobile phone users. This greatly enhances the convenience of communication among people.

A conventional data transmission implemented by mobile phones is shown in FIG. 1 wherein data is transmitted from one mobile phone to a specific remote mobile phone or
20 a plurality of remote mobile phones through a telephone exchange. However, in either of the above cases, the data transmission rate is at most 14K bit per second (bps) as defined by the existing mobile phone communication protocol. Hence, a lot of time is consumed in transmitting a large amount of data. This is inconvenient in use. Thus, a need for improvement exists.

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SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a mechanism comprising a data transmission software in a memory of each of a plurality of

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communication devices and a data transmission interface in each device respectively for establishing a connection between the devices through at least one signal line and effecting a data transmission therebetween wherein in transmitting data from one local device to a remote one, the data transmission software divides data into a plurality of units each having a predetermined size, the units are individually transmitted to another local device through the signal line, and the other local device transmits the units through a wireless communication with a corresponding remote device; and in receiving data, the data transmission software in the device receives the units sent from the remote other device, the received units are sent to one of the local devices through the signal line, and the data transmission software in the device regroups the units to recover as an original data. By utilizing this, it is possible of effecting a fast data transmission between communication devices.

The above and other objects, features and advantages of the present invention will become apparent from the following detailed description taken with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 schematically shows a conventional data transmission implemented by mobile phones;

FIG. 2 schematically shows a fast data transmission implemented by communication devices according to the invention;

FIG. 3 is a flow chart diagram showing how CPU of a communication device transmits data; and

FIG. 4 is a flow chart diagram showing how CPU of the other communication device receives data.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 2, there is shown a mechanism for effecting a fast data

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transmission between communication devices constructed in accordance with the invention. A data transmission interface is provided in each communication device. A data transmission software is installed in the memory of each communication device. With such interface, one communication device, referred to for convenience as a "local"
5 communication device, may establish a connection with another communication device, referred to as another "local" communication device, having the same configuration through at least one signal line. Thus, communication devices may effect a signal transmission therebetween.

In the case of transmitting data from one local communication device to another
10 remote one, the user may input instructions provided by the data transmission software by keying on one communication device to set the one communication device as a master and another local communication device as a slave. Then the data transmission software divides the data into a plurality of units each having a predetermined size. Such units are individually transmitted to the slave through the local signal line. Finally,
15 all channels belonging to master and slave are utilized for transmitting units through wireless communication to the remote communication device.

In another case the master and slave may utilize data transmission software to receive units from a remote communication device. Then units are sent to one master over the signal line. Data transmission software in the communication device may then
20 regroup units to recover a complete original data. Note that methods for dividing data and regrouping data units are well known. Further, the object of the invention is not to provide a method to solve problems associated therewith. Thus a detailed description thereof is omitted herein for the sake of brevity.

In the invention, the data transmission interface is a universal serial bus (USB)
25 interface. Each communication device may utilize a transmission protocol implemented in USB to determine how to transmit a signal. In detail, in response to data divided into units by the master, the transmission protocol implemented in USB is utilized to transmit units to a remote communication device through an appropriate slave. As the remote

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communication device receives units, the transmission protocol is again utilized to send the received units to the master for regrouping.

In the invention, when data is divided into a plurality of units by the master, a unique identification (ID) associated with one communication device (master or slave) is assigned to each unit. Hence, the master may send a unit to a corresponding slave based on the ID. Moreover, as the communication device receives units and the received units are sent to the master for regrouping, data transmission software in the master may assemble units to recover a complete original data based on the IDs.

Referring to FIG. 3, a flow chart diagram shows how a central processing unit (CPU) of a communication device transmits a record of data. In step 301, the user may input instructions provided by the data transmission software by keying on one communication device to set the one communication device as a master and another communication device connected to the one communication device by a signal line as a slave. In step 302, data transmission software in the master determines whether a division of data is necessary. If yes, the process goes to step 303. If not, the process goes to step 306 for the causing master to transmit data prior to ending the process. In step 303, the data is divided into a plurality of units and a unique identification (ID) associated with one communication device is assigned to each unit. In step 304, units are transmitted to a communication device through signal line. In step 305, the communication device transmits units.

FIG. 4 is a flow chart diagram showing how the CPU of the other communication device receives data. In step 401, the associated units are received as determined by the data transmission software. In step 402, units are transmitted to a communication device set as a master through a signal line. In step 403, data transmission software in the master is utilized again to regroup units to recover the original record of data.

In the invention, the communication device is implemented as a mobile phone. Also, data transmitted on the mobile phone is divided into a plurality of units each having a predetermined size which is no more than 14K bit per second (bps) as defined

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by the existing mobile phone communication protocol. In one example, a record of data having a size of 100K bit per second (bps) is divided into eight units each of 12.5K bit per second (bps). Hence, it is possible to transmit such data in one second if there are eight mobile phones are coupled together. Hence, the invention can significantly
5 save data transmission time.

While the invention has been described by means of specific embodiments, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope and spirit of the invention set forth in the claims.